

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listings of Claims:

Claims 1-28 (canceled)

29. (Original) A power MOSFET comprising:

a substrate of a first conductivity type;

an epitaxial layer on said substrate, said epitaxial layer generally being of a second conductivity type opposite to said first conductivity type, a trench being formed in said epitaxial layer;

an insulating layer lining a bottom and a sidewall of said trench;

a conductive gate in said trench;

a source region adjacent a surface of said epitaxial layer; and

a drain-drift region of said first conductivity type extending through said epitaxial layer from a bottom of said trench to said substrate, said drain-drift region forming a PN junction with a portion of said epitaxial layer of said second conductivity type.

30. (Original) The power MOSFET of Claim 29 wherein at least 75% of a cross-sectional area of said drain-drift region is located directly below said trench.

31. (Original) The power MOSFET of Claim 30 wherein at least 90% of a cross-sectional area of said drain-drift region is located directly below said trench.

32. (Original) The power MOSFET of Claim 29 wherein said PN junction intersects a sidewall of said trench.

33. (Original) The power MOSFET of Claim 29 wherein said PN junction is concave in the towards an interior portion of said drain-drift region.

34. (Original) The power MOSFET of Claim 29 wherein said drain-drift region comprises a plurality of implants made at different energies.

35. (Original) The power MOSFET of Claim 29 wherein said epitaxial layer comprises two sublayers having different doping concentrations.

36. (Original) The power MOSFET of Claim 29 comprising a body region of said second conductivity type in said epitaxial layer.

37. (Original) The power MOSFET of Claim 36 wherein a lower border of said body region is at a level below a bottom of said trench.

38. (Original) The power MOSFET of Claim 37 wherein said body region extends to said substrate.

39. (Original) A power MOSFET comprising:

a substrate of a first conductivity type;

an epitaxial layer on said substrate, said epitaxial layer generally being of a second conductivity type opposite to said first conductivity type, a trench extending from a surface of said epitaxial layer through said epitaxial layer and into said substrate;

an insulating layer lining a bottom and a sidewall of said trench;

a conductive gate in said trench; and

a source region of said first conductivity type adjacent said surface of said epitaxial layer and a sidewall of said trench.